National Institute of Environmental Health Sciences

The impact of extreme weather and climate change on inland waterway transport

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Abstract:

Similarly to other modes of transport, inland waterway transport has to deal with weather events, affecting navigation conditions and the infrastructure on inland waterways. Most significant extreme weather events result from high precipitation, droughts and temperatures below zero degrees Celsius. Heavy rainfall, in particular in association with snow melt, may lead to floods resulting in suspension of navigation and causing damage to the inland waterway infrastructure as well as the property and health of human beings living in areas exposed to flooding. Long periods of drought may lead to reduced discharge and low water levels, limiting the cargo-carrying capacity of vessels and increasing the specific costs of transportation. Temperatures below zero degrees Celsius over a longer period may cause the appearance of ice on waterways, leading to suspension of navigation and possible damage to infrastructure, for example, buoys. Neither extreme weather events as well as climate change are new phenomena nor is their general occurrence expected to change suddenly. However, due to climate change, extreme weather events may change positively or adversely in severity and frequency of occurrence, depending on the respective weather event and the location of its occurrence. This paper gives an overview of the impact of extreme weather events on inland waterway transport in Europe, focussed on the Rhine-Main-Danube corridor, followed by a discussion on how climate change will change these events and their impacts.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Precipitation, Temperature

Extreme Weather Event: Drought, Flooding

Temperature: Extreme Cold

Geographic Feature:

resource focuses on specific type of geography

Freshwater

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Resource Type: ☒

format or standard characteristic of resource

Review

Timescale: ☒

time period studied

Time Scale Unspecified